



PATENT APPLICATION
Mo-5766
LeA 32,756

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION OF)	
JORG HOFMANN ET AL)	GROUP NO.: 1755
SERIAL NUMBER: 09/582,141)	EXAMINER: E. D. WOOD
FILED: JUNE 21, 2000)	
TITLE: IMPROVED DOUBLE-METAL)	
CYANIDE CATALYSTS FOR THE)	
PRODUCTION OF POLYETHER)	
POLYOLS)	

LETTER

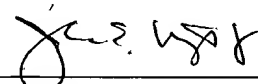
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed herewith are three copies of an Amended Appeal Brief in the matter of the subject Appeal. This Amended Brief is filed in response to the Office Communication mailed July 28, 2004. The fee for filing the Brief in this case should have been paid already, however if necessary, please charge the fee for filing the Brief, \$330.00, to our Deposit Account Number 13-3848.

Respectfully submitted

By


John E. Mrozinski, Jr.
Attorney for Appellants
Reg. No. 46,179

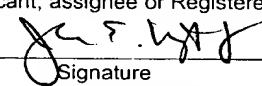
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Date

John E. Mrozinski, Jr., Reg. No. 46,179

Name of applicant, assignee or Registered Representative


Signature

August 27, 2004



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TITLE: IMPROVED DOUBLE-METAL CYANIDE CATALYSTS FOR THE PRODUCTION OF POLYETHER POLYOLS)	

AMENDED APPEAL BRIEF

Dear Sir:

The present Amended Appeal Brief is submitted in triplicate in support of the Notice of Appeal filed April 22, 2004 and in response to the Office Communication mailed July 28, 2004 setting a one-month period for reply.

I. REAL PARTY IN INTEREST

The real party in interest for the present Application Serial No. 09/582,141 is Bayer Aktiengesellschaft, of Leverkusen, Germany, by virtue of the assignment executed April 29, 2000, May 8, 2000, May 10, 2000 and May 22, 2000.

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Alexandria, VA 22313-1450

8/27/04

Date

John E. Mrozinski, Jr., Reg. No. 46,179

Name of applicant, assignee or Registered Representative

Signature

August 27, 2004

Date

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II. RELATED APPEALS AND INTERFERENCES

On April 22, 2004, a Notice of Appeal was filed in Application Serial No. 09/582,141. There are no pending appeals or interferences of which Appellants are aware that would be affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

Appellants herewith appeal the final rejection of Claims 1-7, 9 and 10. Claims 1-7, 9 and 10 are pending and stand rejected. Claim 8 has been canceled. A complete copy of the appealed claims is set forth in the Appendix.

IV. STATUS OF AMENDMENTS AFTER FINAL

A Response under 37 CFR §1.116 was filed on January 7, 2004. In the Advisory Action dated April 1, 2004, the Examiner indicated that the response would not be entered as it did not place the application in condition for allowance because:

of the reasons already of record. The examiner fails to understand why applicants need the Examiner's assistance to identify portions (sic) of the reference that explicitly disclose polycarbonates as preferred polymers and specifically disclose molecular weights commensurate with those being claimed herein. The examiner has already referenced columns 4 and 5 of Le-Khac in Paper No. 18. Regarding the molecular weight, line 46 of column 4 indicates "n" as preferably between 10 and 500 which clearly indicates that the lower molecular weight polymers are preferred. Regarding the motivation to select these components from among many, applicant's arguments are precisely the same as those addressed in the Board's decision of April 23, 2003. There is nothing unobvious in selecting one from many as long as the reference teaches all to be suitable for their purpose. Since the reference discloses polycarbonates as preferred and teaches the lower end of the broad molecular weight range to be preferred, the prior art has also effectively provided motivation for selection of lower molecular weight polycarbonate.

V. SUMMARY OF THE INVENTION

The present invention relates to a double-metal cyanide (DMC) catalyst comprising a double metal cyanide compound, an organic complexing ligand and 2 to 80 wt. %, based on the amount of finished catalyst, of an aliphatic polycarbonate having hydroxyl end groups and an average molecular weight below 12,000, as determined by measurement of the OH number.

VI. ISSUES ON APPEAL

The following issues are set forth for consideration by the Board:

1. Whether Claims 1-7, 9 and 10 are rendered obvious, under 35 U.S.C. §103(a), by U.S. Pat. No. 5,714,428 issued to Le-Khac et al.

VII. GROUPING OF THE CLAIMS

With respect to the above Issue 1, Appellants admit that Claims 1-7, 9 and 10 stand or fall together.

VIII. ARGUMENT

As will be set forth in detail below, Claims 1-7, 9 and 10 are not rendered obvious by U.S. Pat. No. 5,714,428 issued to Le-Khac et al. Accordingly the rejections under 35 U.S.C. §103(a) should be reversed, and favorable action by the Board is respectfully requested.

A. The Invention

The present invention relates to a double-metal cyanide (DMC) catalyst comprising a double metal cyanide compound, an organic complexing ligand and 2 to 80 wt. %, based on the amount of finished catalyst, of an aliphatic polycarbonate having hydroxyl end groups and an average molecular weight below 12,000, as determined by measurement of the OH number.

B. The Rejection under U.S.C. §103(a) is Improper

Claims 1-7, 9 and 10 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,714,428 issued to Le-Khac et al. As will be set forth below, Appellants submit that Claims 1-7, 9 and 10 are not rendered obvious by the cited combination of art and the rejection should be reversed.

1. *The Examiner's Rationale*

The Examiner stated at page 3 of the Final Office Action, mailed November 20, 2003 that Claims 1-7, 9 and 10, "remain rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,714,428 to Le-Khac, for the reasons set forth in the previous office action." In that previous Office Action, mailed July 24, 2003, at pages 3-4, the Examiner alleged that,

This application involves a double metal cyanide catalyst, method for the production thereof and method for the use thereof. The groups will be addressed together because it would appear that applicants consider the novelty of all embodiments of the invention to reside in the addition of a particular polycarbonate to the DMC catalyst composition.

Le-Khac discloses a DMC catalyst composition containing about 2 to about 80% of a functionalized polymer. The polymer can be a polycarbonate. This is substantially representative of the invention as claimed in the instant application. See particularly columns 4 and 5.

The Le-Khac disclosure differs from the amended claims in that the amended claims now require the polycarbonate to have hydroxyl end groups and a molecular weight below 12000. However, the amended claims would have been obvious because Le-Khac discloses that his functionalized polymer may be a polycarbonate and the molecular weight of his functionalized polymer can vary between 500 and 50,000. Furthermore, the reference teaches a species of polycarbonate considered to fall directly within the claimed limitations, i.e., poly(1,6-hexanediol carbonate).

Regarding methods of making the composition and methods of using the composition, they are well known as admitted by applicants in the specification and fairly shown by the prior art of record. Accordingly, there is nothing unobvious in the method steps.

2. *The Claimed Compositions are Patentably Distinguishable From the Cited Combination of References*

As a preliminary matter regarding the Examiner's comments with respect to the prior Board Decision in the instant application, Appellants point out that the Board in its Decision of April 23, 2003 affirmed the Examiner's rejections of then - pending Claims 1-7, 9 and 10 not now-pending and amended Claims 1-7, 9 and 10, which are the subject of the instant Appeal. The remarks made by the Board in that case, likewise, pertained to those then-pending Claims 1-7, 9 and 10 and not to the claims of the instant Appeal. The Examiner seems to be laboring under the

misconception that the Board's decision in that prior case is somehow supportive of her position regarding the different claims which are the subject of the instant Appeal. Currently appealed Claims 1-7, 9 and 10 are directed to an invention of different scope than was recited in the claims considered by the Board in its prior Decision. Further, as to the Examiner's reliance on the Board's statement taken from *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 806-09, 10 USPQ2d 1843, 1845-48 (Fed. Cir.), *cert. denied*, 493 U.S. 975, 110 S. Ct. 498, 107 L. Ed. 2d 502, 110 S. Ct. 498 (1989) that,

There is nothing unobvious in selecting one from many as long as the reference teaches all to be suitable for their purpose.

Appellants respectfully note that the Federal Circuit has distinguished *Merck* in *In re Jones*, 958 F.2d 347, 350 (Fed. Cir. 1992) wherein they stated, " (w)e decline to extract from *Merck* the rule ...that regardless of how broad, a disclosure of a chemical genus renders obvious any species that happens to fall within it." Appellants call attention to the fact that Le Khac et al. provide a "laundry list" of nine (9) broad classes of functionalized polymers (one of which is merely denominated as "polycarbonates") and provide a "preferred" molecular weight range of virtually 500,000.

The Examiner argued at the paragraph spanning pages 3-4 of the Final Office Action that,

The suggestion or motivation, as clearly stated in the previous office action, comes from the reference itself, which specifically discloses polymers having molecular weights that completely embrace those claimed by applicants. Accordingly, the teaching that the polymers being claimed by applicants are clearly function (sic) in the claimed catalyst is explicitly disclosed by the reference which therefore provides explicit motivation for the selection thereof.

The only portions of the Le-Khac et al. reference which describe the functionalized polymers and provide the molecular weights thereof are reproduced below for the Board's convenience.

In other preferred catalysts of the invention, the functionalized polymer is selected from the group consisting of polyesters, polycarbonates, oxazoline polymers, polyalkylenimines, maleic acid and maleic anhydride copolymers, hydroxyethyl cellulose, starches, and polyacetals. (col. 4, line 66 to col. 5, line 4)

The molecular weight of the functionalized polymer can vary over a fairly wide range. Preferably, the number average molecular weight is within the range of about 300 to about 500,000; a more preferred range is from about 500 to about 50,000. (col. 5, lines 19-23)

Appellants were and still are unable to determine which portions of the above-reproduced passages from Le Khac et al. the Examiner believed "specifically" disclose the instantly claimed aliphatic polycarbonate having hydroxyl end groups with a molecular weight below 12,000 and/or those portions of the reference which provide "explicit" motivation or suggestion to one of ordinary skill in the art to make such selections, they requested the Examiner's assistance in specifically identifying said portions. The Examiner's only reply to this request as given in the Advisory Action was to question the need for such assistance.

Appellants requested help as they noted that Le Khac et al. provide a "laundry list" of nine (9) classes of functionalized polymers (one of which is merely labeled "polycarbonates") and provide a preferred molecular weight range of from 300 to 500,000. The Board's attention in this regard is respectfully directed to *Fujikawa v. Wattanasin* 39 USPQ2d 1895, 1905 (Fed. Cir. 1996), wherein the court stated,

Clearly, however, just because a moiety is listed as one possible choice for one position does not mean there is *ipsis verbis* support for every species or sub-genus that chooses that moiety. Were this the case, a "laundry list" disclosure of every possible moiety for every possible position would constitute a written description of every species in the genus. This cannot be because such a disclosure would not "reasonably lead" those skilled in the art to any particular species.

Appellants aver that one of ordinary skill in the art is left to select from the myriads of possibilities encompassed by the broad disclosures of Le Khac et al. with no guide indicating or directing that any particular selection should be made rather than any of the virtually innumerable others which could also be made, other than the teaching provided by the instant disclosure. Appellants respectfully assert that this Board cannot permit such a rejection under 35 U.S.C. §103(a), based solely upon unguided conjecture, to stand.

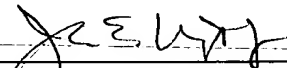
Thus, Appellants maintain the cited combination of references fails to render obvious Claims 1-7, 9 and 10 and therefore the rejection under 35 U.S.C. §103(a) should be reversed.

IX. CONCLUSIONS

Therefore, for the reasons set forth above, the rejections of Claims 1-7, 9 and 10 under 35 U.S.C. §103(a) are erroneous and the Board's reversal of those rejections is respectfully requested.

Respectfully submitted,

By



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APPENDIX - CLAIMS ON APPEAL

- Claim 1. A double-metal cyanide (DMC) catalyst comprising:
- a) a double metal cyanide compound;
 - b) an organic complexing ligand; and
 - c) 2 to 80 wt. %, based on the amount of finished catalyst, of an aliphatic polycarbonate having hydroxyl end groups and an average molecular weight below 12,000, as determined by measurement of the OH number.
- Claim 2. The DMC catalyst according to Claim 1, in which the double-metal cyanide compound is zinc hexacyanocobaltate(III).
- Claim 3. The DMC catalyst according to Claim 1, in which the organic complexing ligand is tert-butanol.
- Claim 4. The DMC catalyst according to Claim 1, in which from about 5 to 50 wt. % of the aliphatic polycarbonate c) is present.
- Claim 5. The DMC catalyst according to Claim 1, wherein the aliphatic polycarbonate is the reaction product of a polyfunctional aliphatic hydroxyl compound with diaryl carbonate, dialkyl carbonate, a dioxolanone, phosgene, a bischlorocarbonic acid ester or urea.
- Claim 6. The DMC catalyst according to Claim 1, wherein the aliphatic polycarbonate comprises an aliphatic polycarbonate-diol with an average molecular weight of 400 to 6000, as determined by measurement of the OH number, which is the reaction product of a non-vicinal diol with diaryl carbonate, dialkyl carbonate, a dioxolanone, phosgene, a bischlorocarbonic acid ester or urea.

Claim 7. A process for the preparation of a DMC catalyst, comprising the steps of:

- (a) reacting an excess of at least one metal salt in aqueous solution with at least one metal cyanide salt in the presence of the organic complexing ligand and an aliphatic polycarbonate having hydroxyl end groups and an average molecular weight below 12,000, as determined by measurement of the OH number;
- (b) isolating the resultant catalyst;
- (c) washing the isolated catalyst; and
- (d) drying the catalyst.

Claim 8. (Cancelled)

Claim 9. A process for the production of a polyether polyol comprising reacting an alkylene oxide onto a starter compound containing active hydrogen atoms, in the presence of the double-metal cyanide (DMC) catalyst of Claim 1.

Claim 10. The process of Claim 7, wherein the aliphatic polycarbonate comprises an aliphatic polycarbonate-diol with an average molecular weight of 400 to 6000, as determined by measurement of the OH number, which is the reaction product of a non-vicinal diol with diaryl carbonate, dialkyl carbonate, a dioxolanone, phosgene, a bischlorocarbonic acid ester or urea.